

A DECADE OF DOLICHOPODIDÆ.*

BY AXEL LEONARD MELANDER, AUSTIN, TEXAS.

The ten species included in the present paper are all from the collection of Dr. Wm. M. Wheeler, under whose management this work was performed. As a slight token of my appreciation of his generosity and kindness, it pleases me greatly to dedicate one of the forms to him.

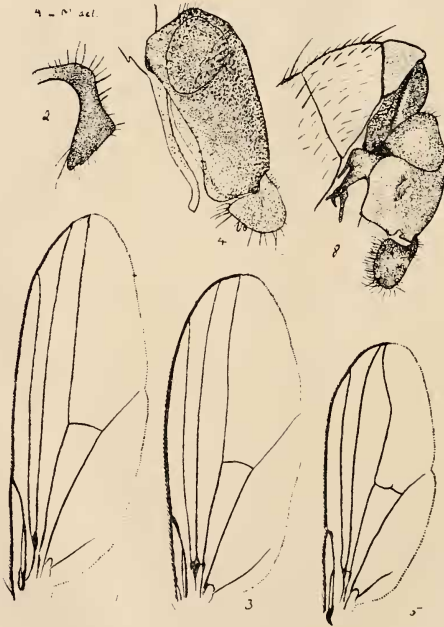


FIG. 9.

*Contributions from the Zoological Laboratory of the University of Texas, No. 2.

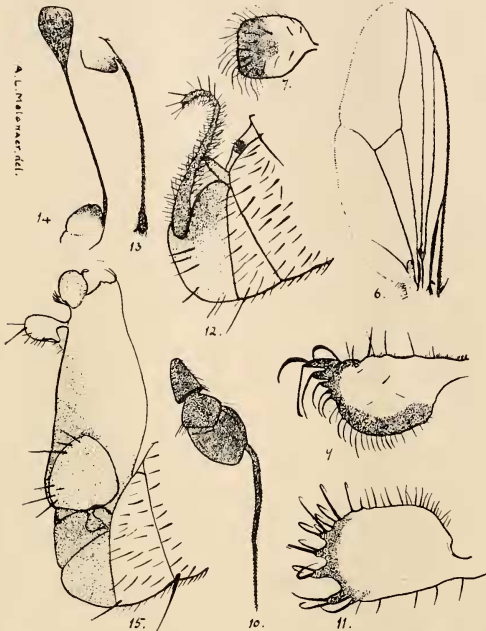


FIG. 10.

EXPLANATION OF FIGURES 9 AND 10.

1. *Hercostomus vetitus*, male wing.
2. *Hercostomus vetitus*, lamella of hypopygium.
3. *Hercostomus anarmostus*, male wing.
4. *Paraclius hybridus*, hypopygium.
5. *Paraclius hybridus*, male wing.
6. *Tachytrechus protervus*, female wing.
7. *Tachytrechus protervus*, lamella.
8. *Tachytrechus volitans*, hypopygium.
9. *Dolichopus sincerus*, lamella.
10. *Dolichopus sincerus*, male antenna, from inside.
11. *Dolichopus misellus*, lamella.
12. *Nematoproctus venustus*, hypopygium.
13. *Gymnopternus mirificus*, male antenna.
14. *Gymnopternus phyllophorus*, Lw., male antenna.
15. *Pelastoneurus Wheelerii*, hypopygium.

1. *Dolichopus sincerus*, n. sp. (Figs. 9, 10.)

Legs, except all the coxæ, hind tarsi and tip of hind tibiæ, yellow; cilia of inferior orbit black; fourth longitudinal not broken, but bent; antennæ black; legs plain; wings unspotted.

Male.—Length 4.5 mm., of wing 4 mm. Bright brassy-green. Face narrow, silvery-dusted, with a slight yellowish tinge on upper part, under the antennæ a little darkened. Palpi dark, silvery-dusted. Antennæ wholly black, third joint broadly ovate; arista a little longer than antenna, stout, tapering, not evidently pubescent. Vertex shining brassy-green, not dusted. Infra-ocular cilia pale yellow, not strong. Thoracic dorsum bright brassy-green, more cupreous along sides and with two cupreous stripes in front bounding the rather strong acrostichals. The velvety and the silvery spots present near base of wing. Abdomen shining, green, becoming more cupreous, then piceous towards incisures. Hypopygium with the lamellæ moderate in size, the lamellæ sub-triangular, whitish with wide black border and ordinary fringe of hairs. Pleura greenish, glaucous, and in various places with a cupreous reflection. Coxæ concolorous with the pleura, except at very tips; fore coxæ with black hairs and bristles on anterior surface; middle coxæ with white hairs intermixed with the black. Femora reddish yellow, slightly darker on upper surface, especially on hind femora toward tip; posterior four with a single preapical bristle; hind femora not ciliated beneath, although the small hairs are a trifle longer than usual; tibiæ yellow, except outer sixth of hind ones, where the black encloses a "dimple" on the outer side; tarsi plain, anterior four from tip of first joint and whole of hind tarsi black; pulvilli pale yellow, small. Wings grayish-hyaline, broad; costa elongate, thickened at tip of first vein; fourth vein with usual flexure; posterior cross-vein perpendicular to first segment of fifth vein and distant about three times its own length from tip of fifth; hind margin with rather evident fringing. Tegulæ and halteres yellow; tegular cilia black.

One male, collected by Dr. Wm. M. Wheeler, in Price County, Wisconsin, August 19, 1897.

Differs from *praustus* by the face being more silvery, vertex shining, fore femora not darker beneath, wings not blackened at tip, and the fourth longitudinal distinctly bent.

2. *Dolichopus misellus*, n. sp. (Fig. 11.)

Femora yellow, hind ones not ciliated; cilia of inferior orbit pale;

cilia of tegulæ black ; wings unspotted, fourth longitudinal not broken ; hind tibiæ tipped with brown ; antennæ black, red below on first joint ; fore coxæ reddish in front ; fore legs plain ; vertex violet-bronzed.

Male.—Length 5 mm., length of wing 4.5 mm. Face and palpi yellowish white. Antennæ lengthened, the joints subequal in length, black ; first joint reddish below, third with the arista preapical, a little longer than antennæ. Vertex violaceous with a cupreous tinge. Infra-ocular cilia pale yellow. Dorsum of thorax and scutellum bronzed-green, shining, not dusted. Abdomen strongly compressed, bronzed-green, shining, slightly dusted, incisures not well marked. Hypopygium not large, lamellæ rounded apically, yellowish-tinged, narrowly black-bordered, and fringed. Pleura dark green, dusted, yet shining in places ; the place of the usual velvety-black antealar spot is taken by a Y-shaped cupreous groove. Bases of middle and hind coxæ and posterior face of front coxæ piceous, glaucous ; the anterior face of the front coxæ is dark yellow, sharply limited, without the usual coating of black hairs, but with three of the strong apical ones and a few pale hairs. Femora yellow, the hind ones not ciliated and with a single anteapical bristle ; tibiæ yellow, except the hind ones at tip on inner side, an elongate apical "dimple" and a narrow glabrous streak on the posterior face of hind tibiæ, the dimple nearer the outside ; tarsi plain, blackened from tip of first joint (hind ones missing in male) ; pulvilli whitish. Wings grayish-hyaline ; veins not black ; fourth vein obtusely, but sharply, bent ; posterior cross-vein distant less than twice its length from tip of fifth ; costa with a small, lengthened, node-like swelling beyond junction with first vein. Tegulæ and halteres light yellow, the former with very long black cilia.

The female differs from the male by the broader, grayer face ; greener front ; shorter tegular cilia ; no costal node nor impression in hind tibia ; front face of fore coxæ with black hairs. Hind metatarsus with basal two-thirds yellowish.

One male and one female from Natrona Co., August 31, 1895, and one female from Little Wind River, September 2, 1895, Wyoming ; collected by Dr. Wm. M. Wheeler.

From the only species with which this could be confounded in any way (*setosus*, *platyprosopus*, *præustus*, *fulvipes* and *Coquilletti*) this species may be readily distinguished by the first short diagnosis.

3. *Gymnopternus mirificus*, n. sp. (Fig. 13.)

Very similar to *G. phyllophorus*, Loew, from which it differs by the

following characters only: Face less ochraceous, more gray; third joint of antennæ more oval, its arista slightly pubescent, terminating in a very small lamella; the hypopygium is scarcely a third the length of that of *phyllophorus*, though this is due in part to shrinking.

One male specimen; collected by Dr. Garry de N. Hough in Massachusetts.

Hercostomus has always been an incongruous genus, formed of species rejected from several genera. The next two species differ from all the genera of *Dolichopodidae* as now understood, but as they show evident affinity to the species of *Hercostomus*, they may be placed, at least provisionally, in that genus. The structure of the male hypopygium, the curvature in the third vein and the presence of oral bristles show a departure, more or less marked, from *Gymnopternus*. The following key is wholly artificial, but readily separates the species hitherto included in this much-abused genus:

- | | |
|--------------------------------------|---|
| Legs largely yellow | 2. |
| Legs largely black | 5. |
| 2. Post-ocular cilia black | 3. |
| Post-ocular cilia pale | 4. |
| 3. Face ochraceous. | <i>procerus</i> , Wheeler. |
| Face dark | <i>vetitus</i> , n. sp. |
| 4. Antennæ yellow | <i>latipes</i> , Aldrich. |
| Antennæ black. | <i>impudicus</i> , Wheeler. |
| 5. Legs and lamellæ piceous. | <i>unicolor</i> , Loew. |
| | (Synonym <i>Gymnopternus pwnitens</i> , Wheeler.) |
| Legs and lamellæ fuscous. | <i>anarmostus</i> , n. sp. |
4. *Hercostomus vetitus*, n. sp. (Fig. 1, 2.)

Male.—Length 4.5 mm., of wing 4.5 mm. Face of moderate width, brownish. Palpi piceous, proboscis fuscous, surrounded with a fringe of bristles. Antennæ short, black, second and third joints together rounded obtusely pointed at tip, with a dorsal, short, gradually tapering, pubescent arista. Vertex dark greenish. Post-ocular cilia black; post-oral beard wanting. Dorsum of thorax dark blue-green, more shining posteriorly, scutellum blue-green, with surface hairy. Abdomen shining, dark blue-green, becoming slightly cupreous towards apex, incisures not darkened. Hypopygium large, sessile, piceous, slightly pubescent dorsally, the dorsal cardiform plate bristly; internal appendages reddish; lamellæ fuscous,

darker towards tip, slender, not lamelliform, fringed with black hairs outwardly and at apex, at basal third a sudden swelling, then of regular width to the triangular clavate apex. Venter concolorous with the rest of the abdomen. Pleura piceous, glaucous. Coxæ more or less darkened, except at tips; fore coxæ less blackened on anterior and posterior surfaces, with short, black hairs besides the long apical bristles; middle coxæ with usual apical brush of hairs. Legs yellow, slightly infuscated towards tip of tarsi; first joint of fore tarsi in length equal to the three following together, of the middle tarsi the first joint equals the next two and half of the third following joints, the hind metatarsus is shorter than the joint next following; posterior femora with a single apical bristle. Wings subhyaline, third vein slightly and gradually converging towards the fourth; anal angle rounded; posterior cross-vein perpendicular to proximal segment of the fourth vein. Tegular cilia black, tegulæ and halteres yellow.

One male, from Clementon, N. J.; collected by Mr. C. W. Johnson, May 30, 1897.

5. *Hercostomus anarmostus*, n. sp. (Fig. 3.)

Male.—Length 3.5 mm., length of wing 3.25 mm. Face rather broad, gray-dusted. Palpi and proboscis piceous. Antennæ black, third joint lengthened, flat above, rounded below, rather acutely pointed, bearing the dorsal arista. Vertex dark greenish, opaque. Post-ocular bristles black. No beard present. Thorax shining, dark green, with usual bristles. Scutellum concolorous, sparsely bristly, and with a marginal row of a few short bristles in addition to usual two. Abdomen green, somewhat brassy, incisures not darkened. Hypopygium piceous, pubescent, its cardiform plate bristly; internal appendages lengthened, reddish; penis pointed; lamellæ infuscated, crescent-shaped, much thickened at middle and evenly attenuated to the tip, covered and fringed externally with short black hairs, apex narrowly but distinctly margined with black. Pleura and coxæ, except tips, green, overlaid with glaucous. Front coxæ with black hairs anteriorly; middle coxæ with fewer hairs than usual. Legs infuscated, especially on upper side of all the femora, tip of hind tibiæ, and fore tarsi from tip of first joint; middle tarsi from apex of first joint black. Metatarsus of fore legs a little shorter than three following joints, of middle equal to two following, of hind legs shorter than next joint and with a few short bristles below. Wings subhyaline, slightly tinged with yellow anterior to third vein and bordering each vein;

veins strong, black, a thickening in the first vein where it reaches the costa; third and fourth veins subparallel, the fourth vein ends slightly before the tip; posterior cross-vein bowed outwardly, perpendicular to the last segment of the fourth vein, a slight lobe under the posterior cross-vein; anal angle full, rounded. Halteres and tegulæ yellow; tegular cilia black.

One specimen; Chicago, Illinois, June 10, 1899; collected by Dr. Wm. M. Wheeler.

6. *Pelastoneurus Wheelerii*, n. sp. (Fig. 15.)

Male.—Length 3.75 mm., of wing 3 mm. Face of moderate width, narrowest in middle, green, thickly overlaid with silvery dust, becoming yellow toward antennæ. Proboscis piceous, palpi silvery, with a few hairs. Antennæ wholly reddish-yellow, slightly subfuscated at apex; third joint short, ovate, bluntly pointed, arista short, tapering, with strong plumosity. Vertex largely green, dusted with yellowish-brown, on each side of ocelli a bluish space. Post-ocular cilia black above, white below; a few post-oral bristles present. Thoracic dorsum when viewed from the front dusted with yellowish-brown, wholly green except a purplish line on outer side of acrostichals, gradually wider behind, where it covers the dorsum except a pre-scutellar, triangular green spot. Above the base of the wing a \cup -shaped black velvety spot extends forward, terminating above in a silvery spot visible only from above. Scutellum green, with brownish dust, glabrous. Abdomen green, broadly silvered at sides, toward base of each segment cupreous; incisures blackened; first segment laterally with a strongly-marked marginal row of erect black bristles. Hypopygium subpedunculate, rather slender, dorsal half obliquely marked with green, glaucous, apical half (=remainder) shining, translucent yellow, internal appendages fuscous, enlarged, appearing like a second set of lamellæ; at base of these is a close fringe of yellow bristles; penis not projecting; lamellæ yellow, rather small, bent backward, circular at tip, fringed with light straggling hairs. Pleura concolorous with sides of abdomen. Fore coxæ pale yellow, silvery in front, and with a moderate coating of black hairs; middle and hind coxæ glaucous basally on outer face; middle coxæ with several black bristles anteriorly and hind coxæ with its usual bristle on outer side. Legs wholly yellow except toward tip of tarsi, where infuscation commences; metatarsus of fore legs shorter than three joints following, of middle legs shorter than two following, and of hind legs shorter than next joint; hind femora with a strong bristle on

lower outer surface below the usual preapical one. Wings with typical neuration; the anterior region along the veins with a distinct darkening; posterior cross-vein inclines rather toward outer part of the fourth vein; anal angle full, almost rectangular. Cilia of the yellow tegulæ black. Halteres yellow.

One male taken along the Colorado River, south of Austin, Texas, October 7th, 1899, by Dr. Wm. M. Wheeler.

From allied forms the present species may be readily recognized as follows:

From *cognatus* by the green vertex, violet thorax, and shorter plumosity of the arista.

From *lineatus* it differs in the coloration of the thorax, the subpedunculate hypopygium and the lighter coloured lamellæ.

7. *Paraclius hybridus*, n. sp. (Figs. 4, 5.)

Male.—Length 3.75–4.25 mm., wing 3.5–4 mm. Face and palpi covered with a golden-gray dust, partially shining, face rather broad. Proboscis prominent, piceous, gray-dusted. Antennæ red; third joint slightly longer than broad, bluntly pointed, infuscated, especially towards tip; arista tapering, moderately plumose. Front cupreous, dusted with golden. Post-ocular cilia yellowish below. Dorsum of thorax and scutellum bronzed, opaque-dusted. Immediately above base of wing a black spot extends forward. Abdomen bronzed, somewhat shining, gray-dusted, especially towards sides. Hypopygium subsessile; lamellæ small, triangular, piceous except at base on dorsal side, where pubescence is also lighter. The usual lamellar filament is wholly wanting. Pleura glaucous. Coxæ with black hairs; fore coxæ yellow, except extreme base; middle coxæ glaucous largely, and hind ones less so, on outer side. Legs reddish yellow; tarsi darkened from tip of first joint; hind femora ciliate with short black hairs below. Wings grayish-hyaline; bend of fourth vein less sharply angulate than in *propinquus*. Tegulæ and halteres yellow; halteres with black cilia.

Female.—Length 3.75–4.75 mm., wing 3.25–4.25 mm. Coloration as in male.

Seven males and five females taken at Woods Holl, Mass., July 14th to 27th, 1899, by Dr. Wm. M. Wheeler.

This species was taken in the same netful with another *Paraclius* and a *Pelastoneurus*. The proportions taken were:

	Male.	Female.
<i>Pelastoneurus lamellatus</i> , Loew	15	18
<i>Paraclius hybridus</i>	9	5
<i>Paraclius propinquus</i> , Wheeler	21	13

The intermediate character of the new species seems to indicate a case of hybridism, but the data are not sufficient to bear out this supposition. *Hybridus* shows affinity for *Pelastoneurus* in the trend of the fourth longitudinal vein and in the lack of the filamentous appendages of the hypopygial lamellæ. The other characters are, however, Paraclian. It may be readily recognized by the following combination of characters: Antennæ largely red; base of fore coxæ narrowly dark; front bronzed; lamellæ of hypopygium triangular.

8. *Nematoproctus venustus*, n. sp. (Fig. 12.)

Male.—Length 4.75 mm., wing 4.5 mm. Face narrow, of nearly equal width, reaching three-fourths of the distance from the antennæ to the lower corner of the eye, covered with silvery dust. Palpi small, yellow, inserted at sides of proboscis. Proboscis piceous, sparsely pubescent. Antennæ short, reddish; first joint longest, glabrous; third ovate, short, with dorsal, long, bare arista (pubescence scarcely perceptible under higher power). Front shining green, the white of the face encroaching along the sides above the antennæ. Post-ocular cilia yellow; lower occiput with long yellow hairs. Eyes hairy. Thoracic dorsum and scutellum brilliant green, slightly dusted anteriorly, and with faint indications of median cupreous stripings; above the base of the wing a velvety black spot present, stronger anteriorly. Abdomen hairy, incisures blackened; first segment brassy green, second and third translucent yellow, fourth cupreous becoming green, sixth green; hypopygium small, rounded, piceous, pubescent, terminal, with long, filiform, infuscated, hairy appendages; internal appendages inconspicuous; penis short, perpendicular. Pleura greenish, gray-dusted. Middle and posterior coxæ concolorous with pleura; anterior coxæ yellow. Legs yellow, except posterior tarsi and outer fourth of posterior tibiæ, which are infuscated; pulvilli not conspicuous. Wings clear, broadest about the middle; last segment of fifth vein once and one-half the length of the cross-vein; cross-vein oblique; last section of fourth vein converging towards third, then subparallel towards tip, distant from third vein, and terminating at tip of wing. Halteres and tegulæ yellow; tegular cilia long, pale yellow.

One male specimen taken by Mr. C. W. Johnson, at Westville, N. J., June 6.

Though the genus *Nematoproctus* has been abandoned by European dipterologists, it may be reinstated, at least provisionally, for this species whose habitus is different from any North American *Diaphorus* with which genus *Nematoproctus* has been united. The genus has never before been recognized outside of Europe.

9. *Tachytrechus volitans*, n. sp. (Fig. 8.)

Male.—Differs from *Floridensis* as follows: Front thickly covered with brownish dust, face with ochraceous dust. First joint of antennæ, when viewed from behind, brownish; when viewed from the front, opaque-black, except inner projection. Ground-colour of thorax of a brilliant metallic copper-colour, which shines through the thick coating of brown dust. Pleura and coxæ heavier white-dusted. Hind femora dark up to very tip. Pulvilli relatively longer, snow-white. Abdomen more cupreous. Pedicel of hypopygium more slender; hypopygium with penis projecting, distinct; lamellæ of similar form, but without the long black basal bristles, and evenly and closely fringed on outer side with longer hairs. The spot at tip of wing arises at tip of third vein and passes back so that the fourth vein bisects it. The third vein arches posteriorly at outer fourth. The fourth vein bends backwards at tip. The posterior cross-vein is less oblique and more sinuate.

The female differs from the male in the same characters as in *Floridensis*.

One male and one female, from twelve miles north-west of Lusk, Wyoming; July, 1895; from the collection of the University of Kansas 10. *Tachytrechus protervus*, n. sp. (Figs. 6, 7.)

Male.—Length 4.25 mm., of wing 4 mm. Face narrowed in middle, silvery dusted, yellower toward antennæ. Antennæ large, yellow; first joint short, second and third fully developed; third joint rounded, infuscated above and toward tip, bearing the dorsal arista once and two-thirds the length of the antenna. Vertex brownish-velvety. Post-ocular cilia black above, pale yellow, slender below. Thorax piceous green; above the base of the wing the horizontal black velvety macule and anterior silvery spot are present, above the former the dorsum is cupreous. Abdomen dark green, silvery-dusted along sides, incisures well marked. Hypopygium piceous, lamellæ subrectangular, dark, hairy, evenly fringed with short black hairs, which are lighter dorsally toward base. Pleura

black, silvery-dusted; metapleura prominent; coxæ concolorous except extreme tip, fore coxæ bronze-dusted in front. Legs black, except the following: Tips of femora below, basal two-thirds of middle and hind tibiæ, and front metatarsi, which are dark yellowish. The fore legs are ornamented as follows: Tibiæ thickened, dusted with yellow on anterior surface, and with longitudinal rows of short black bristles; tarsi compressed, first joint a little shorter than the rest together, pulvilli large. Wings hyaline; anal angle much fuller than in *angustipennis*; fourth vein turned forward toward third, ending considerably before the tip of the wing; posterior cross-vein distant its length from the apex of the fifth vein, bowed inward and surrounded by a very faint cloud. Tegular cilia black.

Female.—Length 5.5 mm., of wing 5 mm. Differs as follows from the male: Face ochraceous. Infra-ocular cilia a little stronger. Vertex, thorax, and abdomen a more brassy, brighter green. Red at tip of femora more spread, and at base of middle and posterior tibiæ more restricted; fore tibiæ yellow, with ordinary bristles; fore tarsi not compressed, first joint equal to next three. Wings with faint yellowish tinge, cross-vein more oblique.

One male from Clementon, N. J., May 10, 1896, and one female from Delaware Water Gap, N. J., July 8. Both specimens were received from Mr. C. W. Johnson.

The following combination of characters briefly distinguishes this species from all the known species of *Tachytrechus*:

Male *artista* without an enlargement; fourth vein curved forward, ending near third and distant from tip; cilia of inferior orbit pale; wings unspotted; antennæ largely red; fore femora plain, more or less yellow-tipped.

In 1878 Mik* established the genus *Macellocerus*, basing it upon *Tachytrechus mæchus*, Loew. From *Tachytrechus* this genus differed thus: "Zweites Fuehlerglied rudimentaer, das dritte klein, mit ausserordentlich verlaengerter, dorsaler Borste, welche am Ende schaufelfoermig erweitert ist. Der letzte Abschnitt der vierten Laengsader convergirt stark gegen die dritte, so dass die Muendungen dieser beiden Adern nahe einander stehen." The addition of *protervus* leaves *Macellocerus* based upon a single male character. Concerning the inadvisability of erecting a genus upon *mæchus*, Dr. Loew had already written.†

*Zur Kenntnis der Dolichopodiden, Dipterologische Untersuchungen, p. 5.

†Morphograph of N. Am. Dolichopodide, p. 112.